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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/791,480

**Applicant(s)**

OHMURA ET AL.

**Examiner**

Janis L. Dote

**Art Unit**

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 June 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 5-11, 13, 18 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 5-11, 13, 18, and 21-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Jun. 5, 2008, has been entered.

2. The examiner acknowledges the cancellation of claims 12, 14, 16, 17, and 19, the amendments to claims 1 and 21, and the addition of claim 27, filed on Jun. 5, 2008. Claims 1, 5-11, 13, 18, and 21-27 are pending.

3. The objection to the specification under 35 U.S.C. 132(a) set forth in the office action mailed on Jan. 14, 2008, paragraph 3, has been withdrawn in response to the third amended paragraph at page 15 of the specification filed on Jun. 5, 2008.

The rejection of claims 1, 5-13, and 16-19 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Jan. 14, 2008, paragraph 5, has been withdrawn in response to the amendment to claim 1 filed on Jun. 5, 2008.

The rejections of claims 1, 5-14, 16-19, and 21-26 under 35 U.S.C. 112, first paragraph, set forth in the office action mailed on Jan. 14, 2008, paragraph 7, have been withdrawn in response to the amendment to claim 1 filed on Jun. 5, 2008, and the third amended paragraph at page 15 of the specification filed on Jun. 5, 2008.

The objection to claim 12 set forth in the office action mailed on Jan. 14, 2008, paragraph 8, has been mooted by the cancellation of claim 12 filed on Jun. 5, 2008.

4. The examiner notes that the instant specification at page 15, lines 16-22, defines the term "amorphous polyester" recited in instant claims 5-7 and 21 as "polyester molecules, a clear crystal structure which is not recognized by means of X-ray diffraction, occupy at least 50 mol% of the total component molecules. More specifically, polyester molecules, which have a crystallization degree of less than 0.1% occupy not less than 50% of the total component molecules, are known as amorphous polyester."

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 5-11, 13, 18, and 21-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 21 and claims dependent on claims 1 and 21 are indefinite in the phrase "fixing the formed toner image on a transfer material after the transferring" (emphasis added) for lack of unambiguous antecedent basis for the term "a transfer material." Claims 1 and 21 previously recite "transferring the formed toner image on a transfer material" (emphasis added). It is not clear whether "a transfer material" in the fixing step refers to the transfer material in the transferring step or to another transfer material.

Claims 1 and 21 and claims dependent on claims 1 and 21 are indefinite in the step "reusing the collected non-transferred toner" (emphasis added) for lack of unambiguous antecedent basis for the term "the collected non-transferred toner." It is not clear what collected non-transferred toner is reused, e.g., the collected non-transferred toner remaining on image carrying

member before passage through a toner intermediate chamber or that after passage.

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 21-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Instant claims 21-26 recite "passing the collected non-transferred toner through a toner immediate chamber with a gas."

The originally filed specification does not provide an adequate written description of the passing step broadly recited in the instant claims. The originally filed specification at page 11, lines 10-15, describes the steps of introducing the collected non-transferred toner by a toner transport tube

element **241** into a toner intermediate chamber **242**, mixing the collected non-transferred toner "with a gas returned from development device **4** through gas return tube **245**," and transporting the toner "with the gas to development device **4** via suction produced by air-pump motor **244**." The passing step recited in instant claims 21-26 is broader than the steps described in the originally filed specification at page 11 because the instant claims do not recite mixing the collected non-transferred toner in the toner intermediate chamber with a gas returned from a development device via a gas return tube as described in the originally filed specification. Nor do the instant claims recite transporting the mixture of the collected non-transferred toner and said gas to the development device via a suction produced by an air-pump motor as described in the originally filed specification.

Applicants assert that the support for the passing step recited in instant claim 21 can be found at page 11, lines 10-15, and page 12, lines 20-22. However, for the reasons discussed above, the disclosure at page 11, lines 10-15, in the originally filed specification does not adequately provide a written description of the passing step broadly recited in instant claims 21-26. Furthermore, the originally filed

specification at page 12, lines 20-22, describes the use of a particular toner intermediate chamber **242** shown in Figure 3. According to the originally filed specification, the toner intermediate chamber **242** shown in Figure 3 comprises "a cylindrical housing." The intermediate chamber further comprises a "[t]oner supplying inlet **242a** . . . provided at the upper portion of toner intermediate chamber **242** . . . [a] Gas introducing inlet **242b** . . . provided at the lower portion of toner intermediate chamber **242**, [where] gas is flown in from development device **4** via flexible gas return tube **245**. . . [an] ejecting outlet **242c** . . . provided above toner supplying inlet **242a**, [where] a mixture of toner and gas is ejected from there toward development device **4** . . . [and] is connected to air pump motor **244** and development **4** via flexible toner transport tube **243**." The particulars of the toner intermediate chamber shown in Figure 3 are not recited in instant claims 21-26. Nor do the instant claims recite that the collected non-transferred toner is mixed with a gas flown in from a development device in the toner intermediate chamber, as described in the originally filed specification. Nor do the instant claims recite ejecting the mixture of the collected non-transferred toner and said gas flown in from a development



device from the toner intermediate chamber as described in the originally filed specification.

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. US 2003/0148204 A1 (Ohmura) was published on Aug. 7, 2003. US 2003/0113647 A1 (Matsushima'647) was published on Jun. 19, 2003. Both dates are prior to the filing date of Mar. 2, 2004, of the instant application. The inventive entities of Ohmura and Matsushima'647 differ from that of the instant application. Thus, Ohmura and Matsushima'647 qualify as prior art under 35 U.S.C. 102(a). Accordingly, Ohmura and Matsushima'647 also qualify as prior art under 35 U.S.C. 103(c).

11. Claims 21 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Patent 10-319813 (JP'813) combined with Ohmura, Matsushima'647, and US 6,395,442 B1 (Hayashi). See the USPTO translation of JP'813 for cites.

JP'813 discloses an image forming method comprising the steps of: (1) developing an electrostatic latent image on a photosensitive member **1** with a toner to form a toner image;

(2) transporting the toner image to a receiving member;  
(3) fixing the toner image to the receiving member; (4) removing untransferred toner from the surface of the photosensitive member 1 with cleaning device 4 and collecting the removed-untransferred toner for reuse; (5) transporting the collected-removed-untransferred toner to a recovered toner regeneration device 7, the "toner intermediate chamber"; (6) separating "foreign matter," from the collected-removed toner in the regeneration device 7 to produce "recovered toner;" and  
(7) reusing the recovered toner from step (6) to develop another electrostatic latent image. See the translation, Figs. 1 to 3, reference claim 1 and paragraphs 0005 and 0007-0012. JP'813 discloses that the "foreign matter" includes paper dust. Translation, paragraph 0002, line 18. The JP'813 process steps meet the process steps recited in instant claim 21, but for the particular toner recited in the instant claims. According to JP'813, the collected-removed toner from the cleaning device 4 is fed into the screw pump 5a, then fluidized by compressed air supplied by the gas supplying device 5b, and then transported as a "gaseous stream" comprising the collected-removed toner and air through a transport tube 6a to the recovered toner regeneration device 7. See Figs. 2 and 3. The device 7

comprises a toner receiving port, where the "gaseous stream" of collected-removed toner and air enters the device 7 via the transport tube 6a. The "gaseous stream" enters a toner receiving section of the device 7, where "foreign matter" is separated from the collected-removed toner to form the "recovered toner." The "gaseous stream" comprising the remaining-recovered toner exits the regeneration device 7 through a discharge port and travels to a hopper 2e of the developing device 2 via a transport tube. See Figs. 2 and 3, and paragraphs 0010-0012. The regeneration device 7 meets the "toner intermediate chamber" structural component limitations recited in instant claim 21.

As discussed above, JP'813 does not exemplify the use of a toner as recited in the instant claims.

Ohmura discloses a toner that has an average circularity of from 0.94 to 0.98, an average circle-equivalent diameter of from 2.6 to 7.6  $\mu\text{m}$ , and a "circularity gradient versus the circle-equivalent diameter" (another name for "slope of a circularity compared to an equivalent circle diameter") of from -0.050 to -0.010. See paragraphs 0014 and 0024 to 0031; and for example, preparation of Toner 1 at paragraphs 0163-0166 and in Table 1 at page 11. Ohmura further teaches that preferably the toner

average circularity is from 0.93 to 0.97, the average circle-equivalent diameter is from 3.4 to 6.6  $\mu\text{m}$ , and the toner "circularity gradient versus the circle-equivalent diameter" is from -0.040 to -0.020. Paragraphs 0015 and 0024. The average circularity value range of 0.94 to 0.98, the average circle-equivalent diameter value range of 2.6 to 7.4  $\mu\text{m}$ , and the gradient value range of -0.050 to -0.010 meet the circularity and particle size limitations recited in instant claim 21. The preferred average circularity, average circle-equivalent diameter, and gradient value ranges meet the circularity and particle size limitations recited in instant claims 23-26.

Ohmura teaches that its toner is obtained by a salt-out/fusing method, which comprises forming resinous particles of a radical-polymerizable monomer, coagulating the resinous particles and colorant particles in the presence of a coagulant and fusing the coagulated particles. Paragraph 0033 and preparation of Toner 1.

According to Ohmura, its toner "makes it possible to form high quality images without resulting in insufficient fixing." Paragraph 0008 and Table 2, example 1 and the accompanying text. Table 2 reports that the toner in example 1 provided uniform imaged copies; and that after 100,000 copies, "toner filming"

was not observed on the photoconductor or on the developing roll.

Ohmura does not exemplify a toner comprising a polyester resin as recited in instant claim 21. However, Ohmura teaches that the toner may comprise a releasing agent. Ohmura further teaches that "the releasing agent is incorporated uniformly within the toner particles including neighborhood of the surface by employing toner prepared by subjecting the resin particles containing the releasing agent to salting-out/fusion." Paragraph 0109.

Matsushima'647 also teaches that toners obtained by a salting-out/fusing method may comprise a releasing agent by incorporating the releasing agent in the resin particles. Matsushima'647 further teaches that in addition to the releasing agent, the resin particles may comprise a crystalline polyester to improve the fixing property of the toner. Paragraphs 0227, 0228, and 0237-0240. Hayashi teaches that toner particles that are obtained by salting-out/fusing resin particles comprising a crystalline polyester have excellent fixability (adhesion to the image support). Hayashi, col. 3, lines 1-10 and 20-24, and Table 3 at col. 20, example 1, which exemplifies colored toner 1, which comprises a crystalline polyester, which has a

melting point 103°C, and comparative example 1, which exemplifies colored toner 15, which does not contain a crystalline polyester. Also see colored toners 1 and 15 in Table 1 at col. 18, and crystalline substance 1 in Table 2 at col. 18. In Table 3, Hayashi reports that the toner in example 1 exhibited excellent offset resistance and excellent fixability; while the toner in comparative example 1 did not.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, Matsushima'647, and Hayashi, to incorporate a crystalline polyester as taught by Matsushima'647 and Hayashi in the resin particles used to form the toner made by the salt-out/fusing method disclosed by Ohmura. It would have also been obvious for that person to use the resultant toner as the toner in the image forming method disclosed by JP'813. That person would have had a reasonable expectation of successfully practicing an image forming method that provides high quality fixed toner images that have improved adhesion to the transfer medium.

12. Claims 1, 8-11, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,521,690 (Taffler) combined with Ohmura.

Taffler discloses an image forming method using an electrophotographic printing device comprising the steps of:

- (1) developing an electrostatic latent image on the photoconductive drum with a toner to form a toner image;
- (2) transporting the toner image to a recording substrate;
- (3) fixing the transferred toner image to the recording substrate;
- (4) removing untransferred toner from the surface of the photoconductive drum with a cleaning brush and collecting the removed-untransferred toner for reuse;
- (5) transporting the collected-removed-untransferred toner to a particle separator **24** which is connected to a toner recycling unit **25**;
- (6) separating dirt particles or "large lumps of toner which has [sic: have] gone lumpy" **84** from the collected-removed toner in the recycling unit **25** to produce recycled toner; and
- (7) reusing the recycled toner to develop another electrostatic latent image.

Figs. 1 and 3; col. 1, lines 10-24; col. 4, line 65, to col. 5, line 10; col. 5, lines 13-14 and 40-62; col. 6, lines 1-4 and 42-45; and col. 8, lines 24-38 and 48-64. The Taffler process steps meet the process steps recited in instant claim 1, but for the particular toner.

Taffler discloses that said printing method is performed by the following image forming apparatus that comprises: a

photoconductive drum; a developing station **10** that comprises a toner box **16**; a cleaning station **28** for removing untransferred toner from the photoconductive drum; a particle separator **24** in the form of a cyclone filter with a toner recycling unit **25**; a suction duct **27** that feeds the untransferred toner from the cleaning station **28** to the particle separator **24**; and a suction duct **41** that connects the toner particle separator **24** to a toner transport duct **23** that is connected to the toner box **16** of the developing station **10** to supply the toner regained from the toner recycling unit **25** to the toner box **16**. Fig. 1; col. 4, line 66, to col. 5, line 4; col. 5, lines 13-14 and 40-62; and col. 6, lines 1-4. According to Taffler, a mixture of toner with dirt particles or "overlarge lumps of toner which has [sic: have] gone lumpy" **84** is sucked out of the cleaning station **28** via the suction duct **27** to the particle separator **24** thru a toner receiving inlet, where the mixture is separated from the air stream using the cyclone filter. Col. 6, lines 42-45, and col. 8, lines 36-38. The dirt particles or overlarge lumps of toner **84** and the toner fall through the cyclone filter. The dirt particles or overlarge lumps of toner **84** remain in the bottom of the cyclone filter held back by the particle sieve **53**. The toner falls through the particle sieve **53** in the recycling



unit **25** to a toner setting space **57** in the recycling unit. From the toner setting space **57**, the recycled toner is fed back to the toner box **16** via the suction duct **41** and the toner transport duct **23**. See Figs. 1 and 3, and col. 8, lines 26-38 and 48-52. To feed the recycled toner to the toner box, ambient air is sucked in via the opened air supply openings **58** and flows through the toner setting space **57**, and transports the recycled toner via the suction duct **41** and the toner transport duct **23** to the toner box **16**. See Fig. 3, and col. 8, lines 52-64.

The particle separator **24** in combination with the toner recycling unit **25** meets the "toner intermediate chamber" structure recited in instant claim 1. The particle separator **24** has a conical structure as recited in instant claim 1. See Fig. 1 and Fig. 3. The air supply openings **58** are located vertically below the toner inlet in the particle separator **24**. The dirt particles or large lumps of toner **84** spiral to the bottom the cyclone filter in a flow of air and are separated from the toner as recited in instant claim 1.

As discussed above, Taffler also does not exemplify the use of a toner as recited in the instant claims.

Ohmura discloses a toner that meets the toner limitations recited in instant claims 1, 8-11, 13, and 18. The discussion

of Ohmura in paragraph 11 above is incorporated herein by reference. As discussed in paragraph 11 above, Ohmura teaches that its toner "makes it possible to form high quality images without resulting in insufficient fixing."

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, to use the Ohmura toner as the toner in the image forming method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming process that provides that provides high quality fixed toner images.

13. Claims 5, 18, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taffler combined with Ohmura as applied to claim 1 above, further combined with Matsushima'647 and Hayashi.

The combined teachings of Taffler and Ohmura render obvious an image forming method as described in paragraph 12 above, which is incorporated herein by reference.

Ohmura does not exemplify a toner comprising a polyester resin as recited in instant claim 5. Nor does Ohmura exemplify a toner comprising a release agent having a melting point as recited in instant claim 27. However, Ohmura teaches that its

toner is obtained by a salt-out/fusing method, which comprises forming resinous particles of a radical-polymerizable monomer, coagulating the resinous particles and colorant particles in the presence of a coagulant and fusing the coagulated particles.

Paragraph 0033 and preparation of Toner 1. Ohmura teaches that the toner may comprise a releasing agent. Ohmura further teaches that "the releasing agent is incorporated uniformly within the toner particles including neighborhood of the surface by employing toner prepared by subjecting the resin particles containing the releasing agent to salting-out/fusion."

Paragraph 0109.

Matsushima'647 also teaches that toners obtained by a salting-out/fusing method may comprise a releasing agent by incorporating the releasing agent in the resin particles. Matsushima'647 further teaches that in addition to the releasing agent, the resin particles may comprise a crystalline polyester to improve the fixing property of the toner. Hayashi teaches that toner particles that are obtained by salting-out/fusing resin particles comprising a crystalline polyester have excellent fixability (adhesion to the image support). The discussions of Matsushima'647 and Hayashi in paragraph 11 above are incorporated herein by reference. In addition, as discussed

in paragraph 11 above, the Hayashi crystalline polyester releasing agent has a melting point 103°C, which is within the melting point range recited in instant claim 27.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ohmura, Matsushima'647, and Hayashi, to incorporate a crystalline polyester as taught by Matsushima'647 and Hayashi in the resin particles used to form the toner made by the salt-out/fusing method disclosed by Ohmura. It would have also been obvious for that person to use the resultant toner as the toner in the image forming method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that provides high quality fixed toner images that have improved adhesion to the transfer medium.

14. Applicants' arguments filed on Jun. 5, 2008, as applicable to the rejections over Ohmura and Matsushima'647 set forth in paragraphs 11-13 above, have been fully considered but they are not persuasive.

Applicants assert that neither Ohmura nor Matsushima'647 is prior art under 35 U.S.C. 102(a) because they have perfected their claim to foreign priority under 35 U.S.C. 119 to the

priority document, Japanese Patent Application 2003-059760, filed on Oct. 29, 2007.

Applicants' assertions are not persuasive. The verified English-language translation of said priority document filed on Oct. 29, 2007, does not provide an adequate written description, as required under 35 U.S.C. 112, first paragraph, of the subject matter recited in instant claims 1, 5-11, 13, 18, and 21-27 for the following reasons:

(1) The translation in paragraph 0016 describes an image forming method as comprising the steps of developing an electrostatic latent image formed on a image carrying member with a toner, transferring the toner image onto a transferring material and after that fixing, wherein the image forming is conducted by collecting and reusing non-transferred toner remaining on said image carrying member and "a toner containing collected non-transferred toner is used after passing through a toner intermediate chamber with gas." The image forming methods recited in independent claims 1 and 21 and claims dependent on claims 1 and 21 are broader than the method described in the translation. Independent claims 1 and 21 do not positively recite reusing the collected non-transferred toner "after passing through a toner immediate chamber with gas" as described

in the translation.

(2) Furthermore, as discussed in item (1) above, the translation describes "a toner containing collected non-transferred toner is used after passing through a toner intermediate chamber with gas." Said description appears to be similar to the passing step recited in instant claims 21-26. However, for the reasons discussed in paragraph 8 above, the originally filed specification does not provide an adequate written description of "passing the collected non-transferred toner through a toner immediate chamber with a gas" as broadly recited in instant claims 21-26. Therefore, there is no continuity of disclosure in the originally filed specification for the subject matter recited in instant claims 21-26. Thus, the subject matter recited in instant claims 21-26 cannot be given the benefit of foreign priority under 35 U.S.C. 119.

Accordingly, for the reasons discussed above, both Ohmura and Matsushima'647 are prior art to the subject matter recited in the instant claims and the rejections in paragraphs 11 and 13 over Ohmura and Matsushima'647 and in paragraph 12 over Ohmura stand.

15. Claims 21-26 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of U.S. Patent No. 7,378,208 B2 (Ohmura'208) in view of Japanese Patent 10-219813 (JP'813). See the USPTO translation of JP'813 for cites.

Reference claim 3, which depends from reference claim 1, recites a toner for electrophotography comprising a colorant, carnauba wax, and a resin, wherein the toner is formed by aggregating resin particles and the resin particles are amorphous polyester resin particles. The amorphous polyester resin meets the resin limitation recited in instant claims 21 and 22.

Reference claim 4, which depends from reference claim 1, requires that the toner has an average value of circularity of from 0.94 to 0.98 and an average value of the equivalent circle diameter of 2.6 to 7.4  $\mu\text{m}$ . The average value of circularity range of 0.94 to 0.98 is within the average circularity range of 0.94 to 0.99 recited in instant claim 21 and encompasses the range of 0.95 to 0.98 recited in instant claims 23 and 26. The average value of the equivalent circle diameter range of 2.6 to 7.4  $\mu\text{m}$  meets the average circle equivalent diameter value range of 2.6 to 7.4  $\mu\text{m}$  recited in instant claim 21 and encompasses the

value range of 3.4 to 6.6  $\mu\text{m}$  recited in instant claims 24 and 26.

Reference claim 5, which depends from reference claim 1, requires that the toner has a slope of the circularity with respect to the equivalent circular diameter of from -0.050 to -0.010, which meets the "slope of a circularity compared to an equivalent circle diameter" of -0.050 to -0.010 recited in instant claim 21 and encompasses the value range of -0.040 to -0.020 recited in instant claim 25.

The claims in Ohumura'208 do not recite the image forming method recited in instant claim 21. However, as discussed supra, the claims in Ohumura'208 recite that the claimed toner is for electrophotography.

JP'813 teaches an electrophotographic image forming method that meets the steps recited in the instant claim 21, but for the particular toner recited in the instant claims. The discussion of JP'813 in paragraph 11 above is incorporated herein by reference. According to JP'813, its image forming method removes the unwanted elements from the untransferred toner so as to regenerate a recovered toner to "have prescribed elements" in order to easily achieve high-quality image formation. Translation, paragraph 0001 and page 5, lines 6-12.



It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the claims of Ohumura'208 and of the teachings of JP'813, to make and use a toner as recited in the instant claims, and to use the resultant toner in the method disclosed by JP'813. That person would have had a reasonable expectation of successfully practicing an image forming method that recycles untransferred toner in such a manner that the toner has prescribed elements to form high quality images.

16. Claims 1, 5, 6, 8-11, 13, 18, and 27 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of Ohmura'208 in view of Taffler.

The subject matter recited in the claims of Ohmura'208 recites a toner as described in paragraph 15 above, which is incorporated herein by reference. For the reasons discussed in paragraph 15 above, the toner renders obvious the toner limitations recited in instant claims 1, 5, 6, 8-11, and 13. In addition, the carnauba wax recited in reference claim 1 meets the toner releasing agent limitation recited in instant claim 18. Furthermore, reference claim 12, which depends on

reference claim 1, requires that the carnauba wax has a melting point in the range of 75-90°C, which is within the releasing agent melting point range of 40-150°C recited in instant claim 27.

The claims in Ohmura'208 do not recite the image forming method recited in instant claim 1. However, as discussed in paragraph 15 supra, the claims in Ohmura'208 recite that the claimed toner is for electrophotography.

Taffler teaches an image forming method using an electrophotographic printing device that meets the steps recited in the instant claim 1, but for the particular toner recited in the instant claims. The discussion of Taffler in paragraph 12 above is incorporated herein by reference. According to Taffler, its image forming method removes the dirt and toner that accumulate in the units of an electrophotographic printing machine, e.g., the untransferred toner removed from a photoconductive drum, recycles the accumulated toner, and returns the recycled toner to the developer station to be reused, "without the printing quality suffering." Col. 1, line 66, to col. 2, line 5; and col. 2, lines 13-15.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter recited in the

claims of Ohmura'208 and of the teachings of Taffler, to make and use a toner as recited in the instant claims, and to use the resultant toner in the method disclosed by Taffler. That person would have had a reasonable expectation of successfully practicing an image forming method that recycles toner in such a manner that does not affect the print quality of the toned images.

17. Claim 7 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-16 of Ohmura'208 in view of Taffler and US 5,387,665 (Misawa).

The subject matter recited in the claims of Ohmura'208 in view of the teachings of Taffler render obvious an image forming method as described in paragraph 16 above, which is incorporated herein by reference.

The claims in Ohmura'208 do not recite that the resin contained in the toner particles is an amorphous urethane-modified polyester resin as recited in instant claim 7. However, as discussed in paragraph 16 supra, reference claim 3 recites that the resin particles used to form the toner particles are amorphous polyester resin particles.

Misawa teaches a degradable amorphous urethane-modified polyester resin for use as a toner binder resin. See col. 3, lines 39-51, and, for example, examples 25-38 at cols. 13-14 and in Table 4. The amorphous urethane-modified polyester resin is obtained by reacting a diisocyanate with a polyester, which is prepared by reacting an amorphous poly( $\alpha$ -hydroxycarboxylic acid) with a polyol. According to Misawa, toners comprising said amorphous urethane-modified polyester binder resin have excellent resistance to hot offset, storage stability, and fixing properties. Col. 3, lines 4-14, and Table 4. Misawa further teaches that toner images made from said toners formed on paper can be efficiently removed from the paper, thereby recycling the paper for further reuse. Said toners are also biodegradable. Col. 1, lines 34-41 and 43-58; and col. 3, lines 5-6.

Misawa does not define the term "amorphous polyester resin" as disclosed in the instant specification. See paragraph 4, supra. Misawa defines a poly( $\alpha$ -hydroxycarboxylic acid) as "amorphous" when it does not have a melting point. Such amorphous polyesters are said to be prepared by directly dehydrating and polycondensing a mixture of optical isomers of  $\alpha$ -hydroxycarboxylic acid or several kinds of  $\alpha$ -hydroxycarboxylic

acid. Col. 4, lines 36-41. Because Misawa teaches that its amorphous urethane-modified polyester resin does not have a melting point, it is reasonable to presume that it does not show a "clear crystal structure" by X-ray diffraction because it lacks the required regular molecular order. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Ohmura'208 and the teachings in Misawa, to use the Misawa amorphous urethane-modified polyester resin as the amorphous polyester resin in the resin particles used to make the toner particles recited in the claims of Ohmura'208. It would have also been obvious for that person to use the resultant toner in the image forming method disclosed by Taffler. That person would have had a reasonable of successfully practicing an image forming method that provides fixed images on paper with little, if any, hot offset as taught by Misawa, where the fixed images can be efficiently removed from the paper and the paper recycled for further use.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L.

Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/  
Primary Examiner, Art Unit 1795

JLD  
Aug. 7, 2008